

AROMATHERAPY - SCIENCE IN SUPPORT OF MARKETING

OUTLINE

- I. Historical Background
 - A. Indirect methods of measuring human response to odors
 - B. Autonomous brain waves
 - C. Development of CNV
- II. Takasago CNV Test
 - A. Protocol
 - B. Comparison to other methods
 - C. Odor versus Drug effects - differences
 - D. Results with essential oils
 - E. Mood Adjective Check List
- III. Product Claims
- IV. New Developments
 - Aromatherapy Air Conditioning System
 - 1. VDT operator testing
 - 2. Engineering

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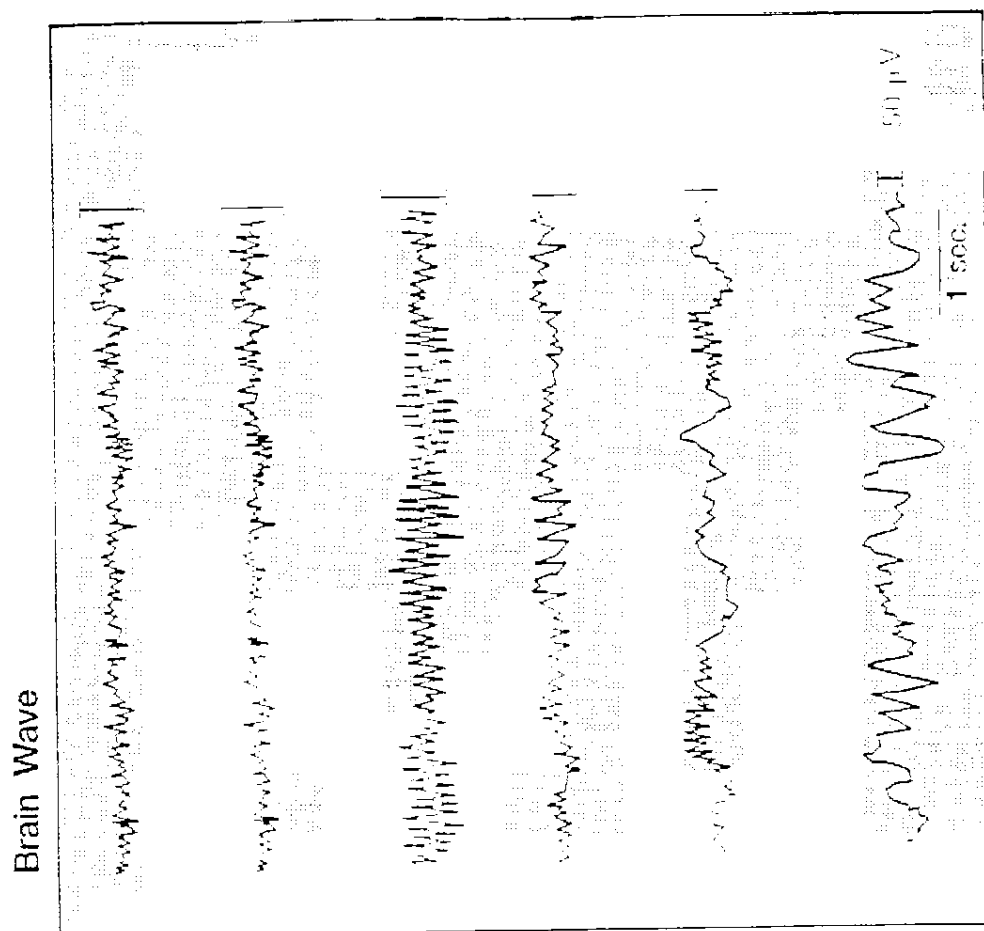
Methods for Measuring Human Response to Odor

- Skin Potential Level (SPL)
- Skin Potential Response (SPR)
- Skin Temperature
- Eye Movement
- Pupil Dilation
- Pulse Wave
- Blood Pressure
- Heart Rate
- Electroencephalogram
- Contingent Negative Variation (CNV)

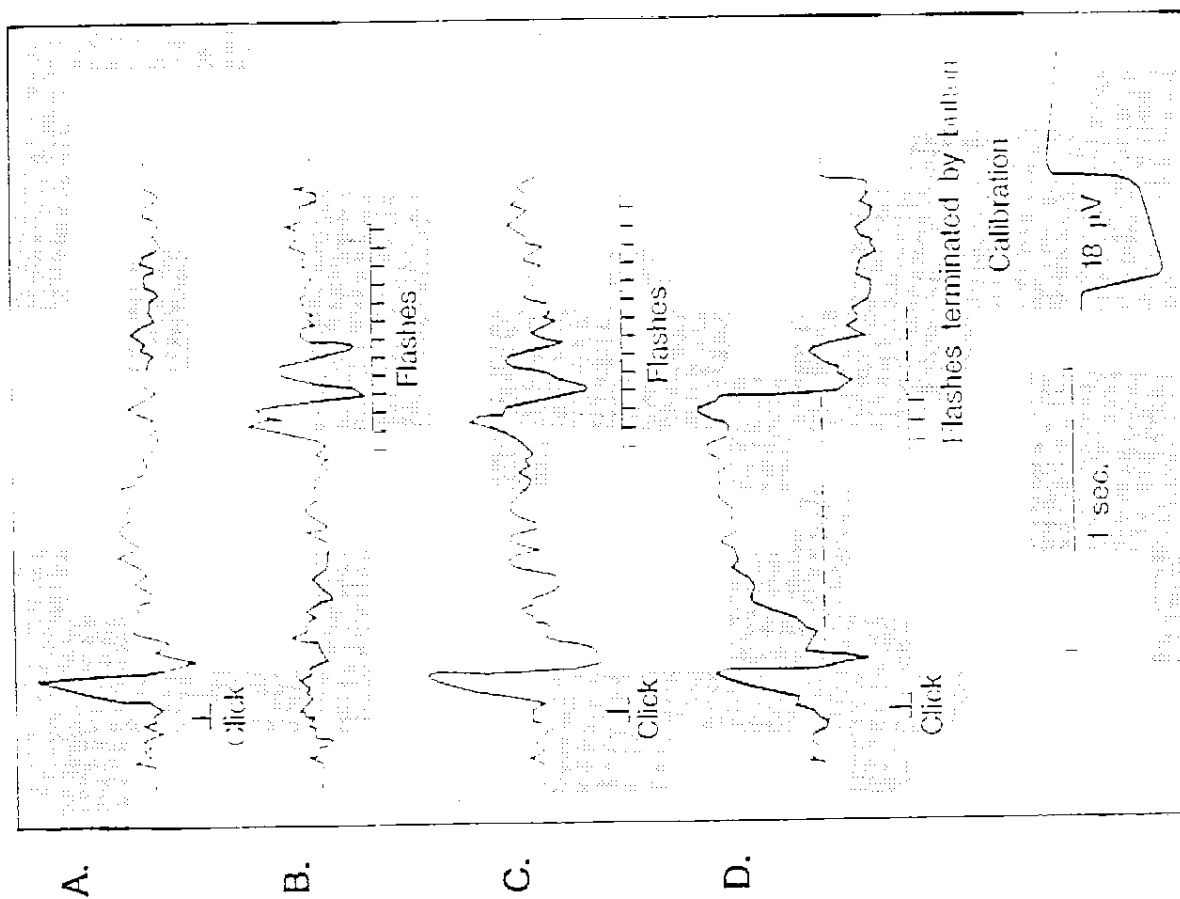
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Brain Wave and Level of Consciousness

Level of Consciousness	Brain Wave
Very Excited Angry, Fear	Fast Wave Beta-Wave
State of Alertness	Beta-Wave
Relaxed State	Alpha-Wave
Sleepy	Theta-Wave
Shallow Sleep	Delta-Wave
Deep Sleep	

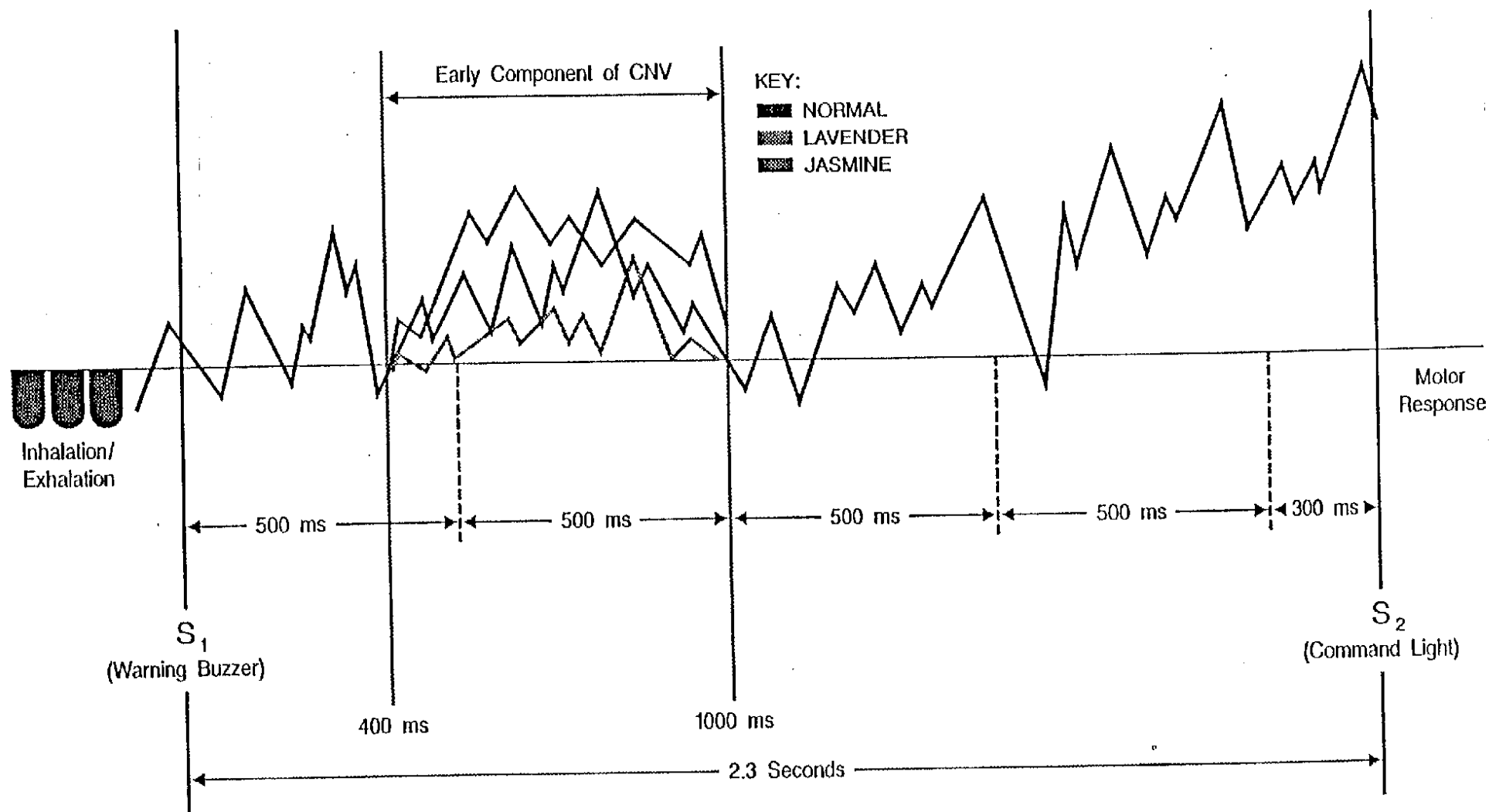


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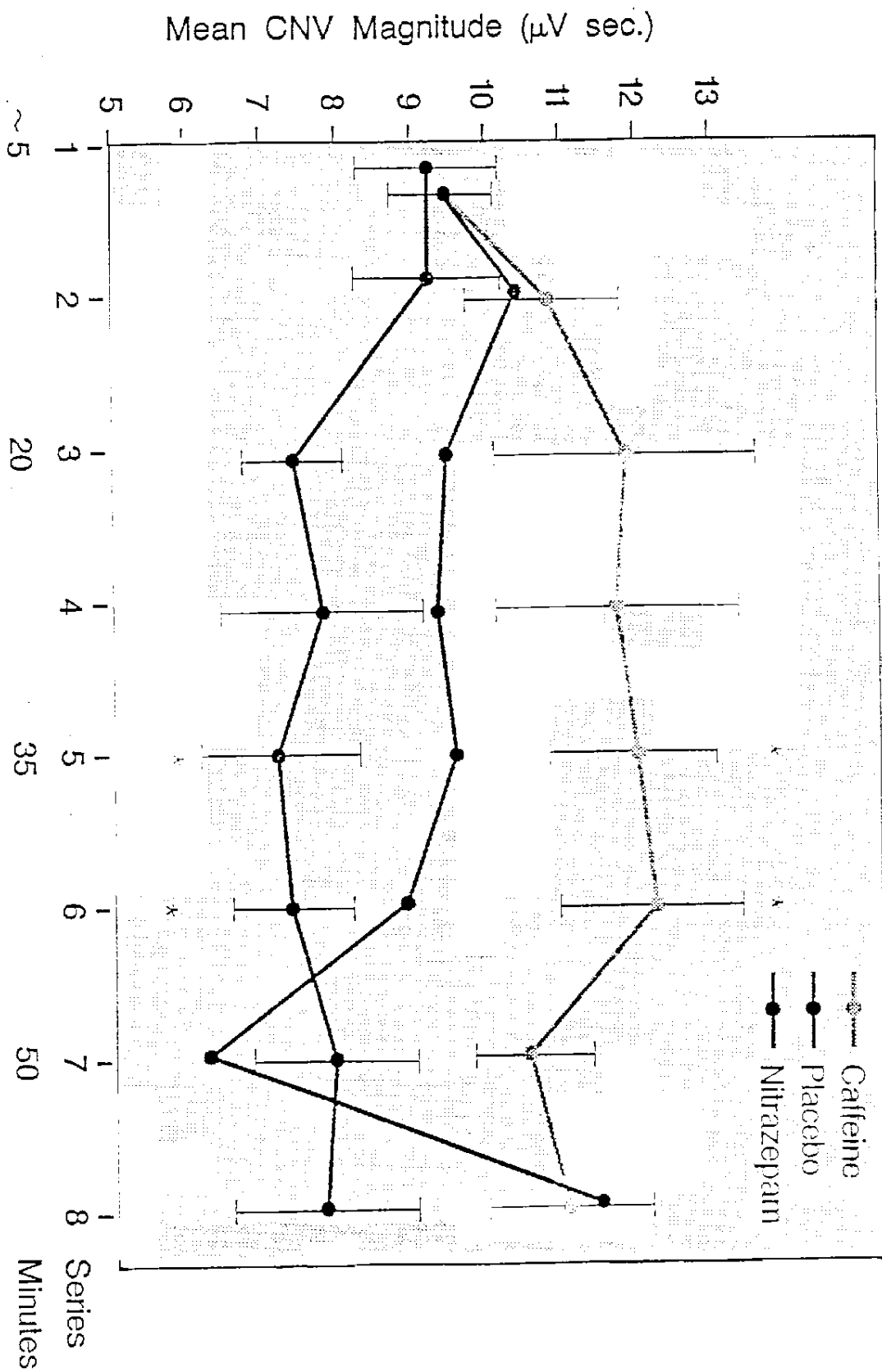


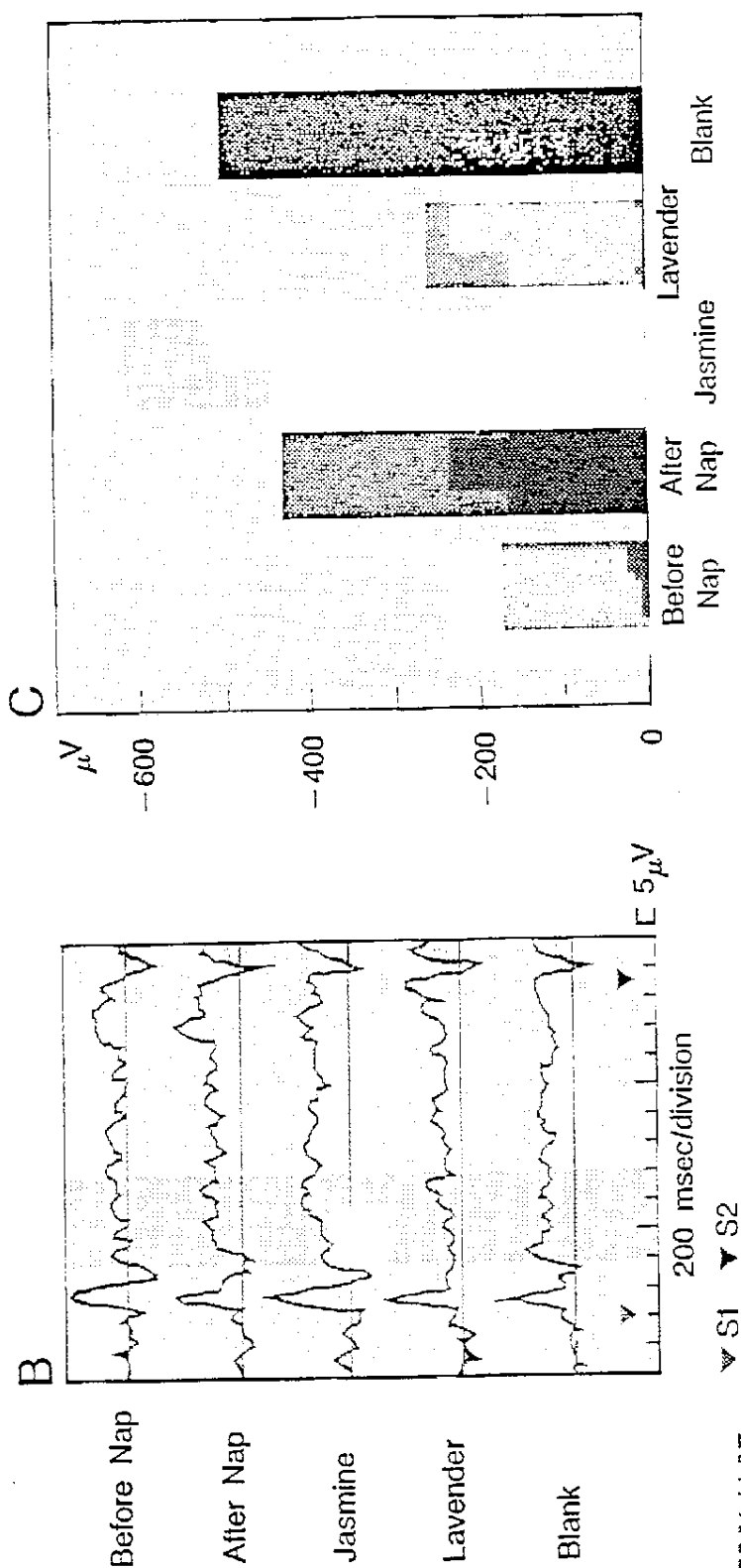
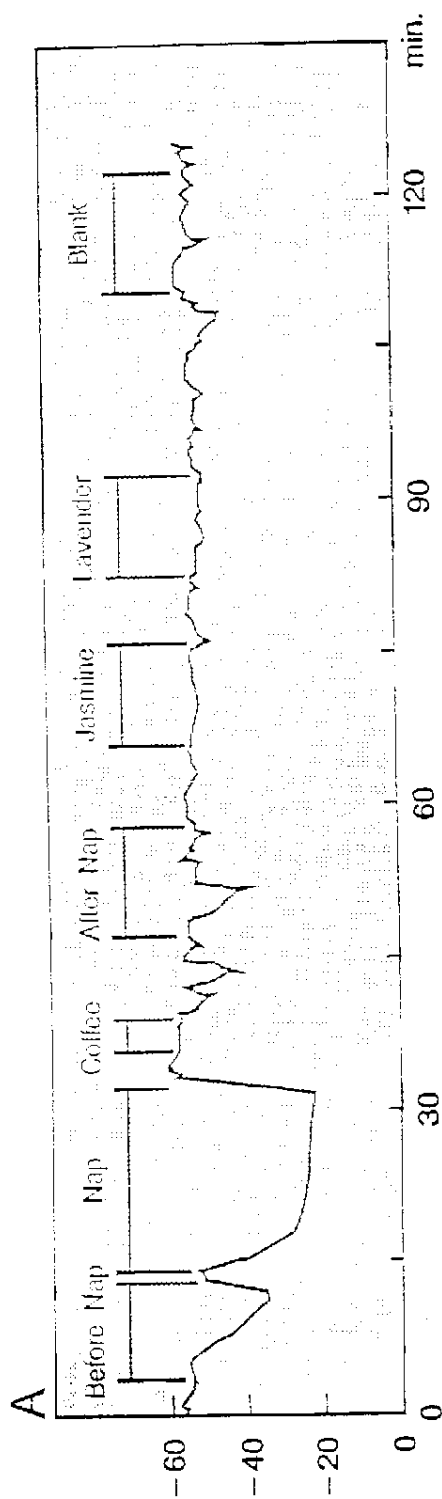
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CNV Test Paradigm



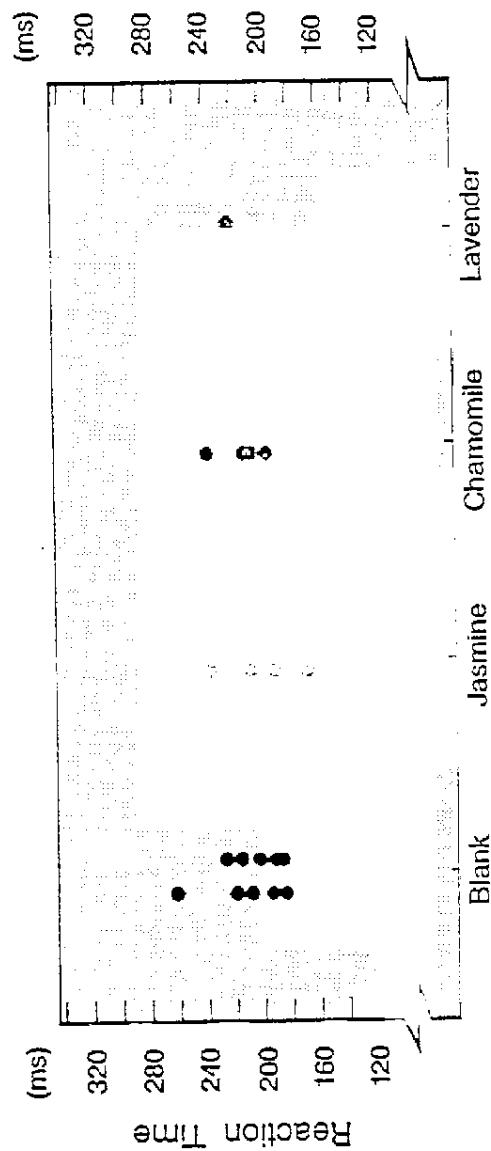
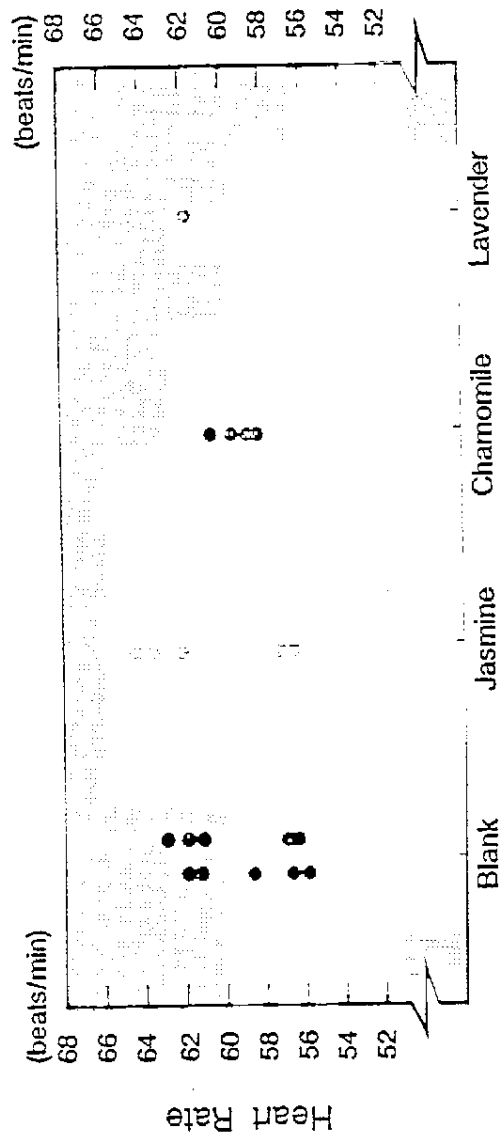
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Effects of Essential Oils on Heart Rate and Reaction Time



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Drug Effects on CNV and Reaction Time (RT)

Drugs	CNV	RT
<u>Depressants</u>		
CPZ	↓	↑
Nitrazepam	↓	↑
NO ₂	↓	↑
Alcohol	↓	
<u>Stimulants</u>		
Caffeine	↑	↓
Marijuana	↑	↓
Amphetamine	↑	

Tecce et al (1975)

Ashton et al (1974)

Fenwick et al (1979)

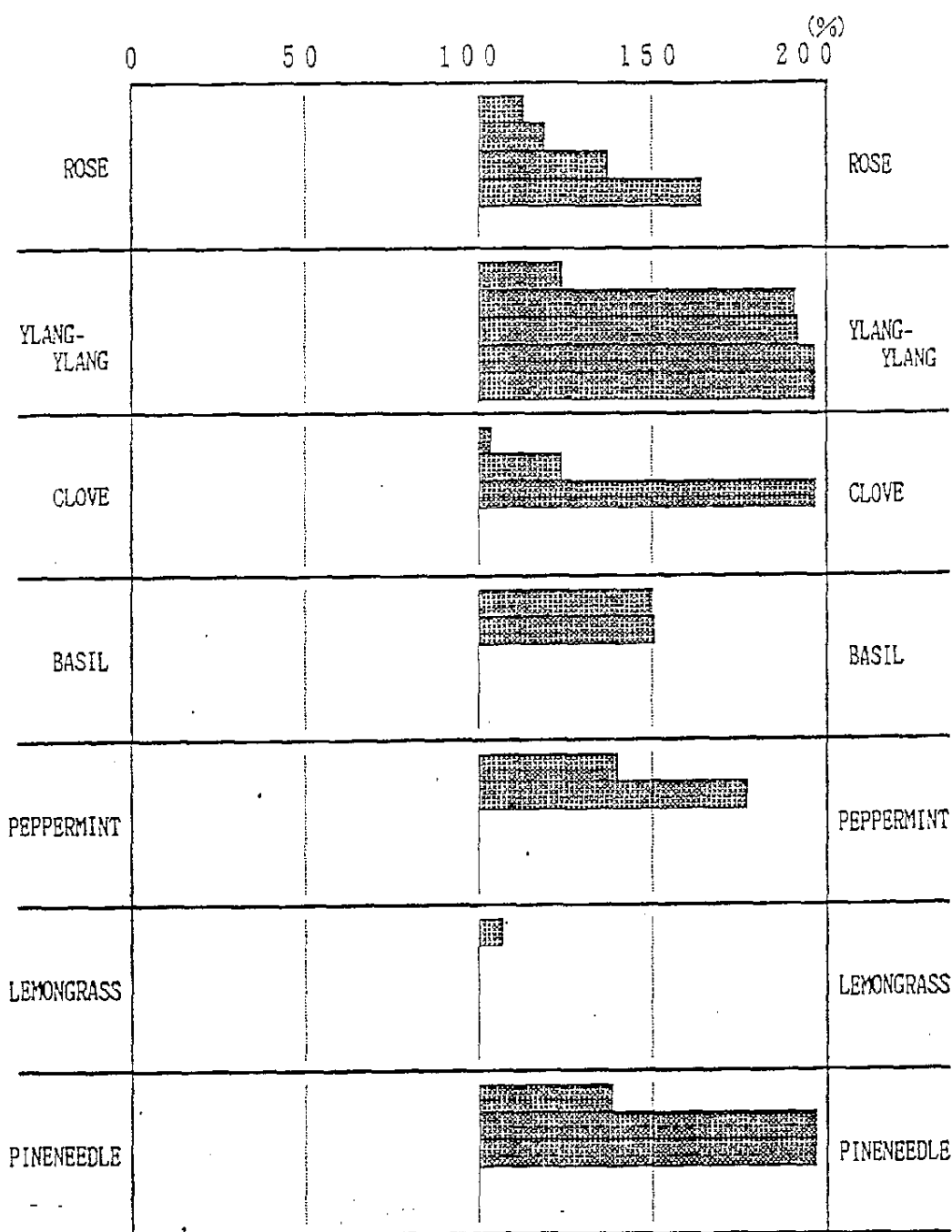
Kopell et al (1972)

Ashton et al (1974)

Braden et al (1974)

Kopell et al (1974)

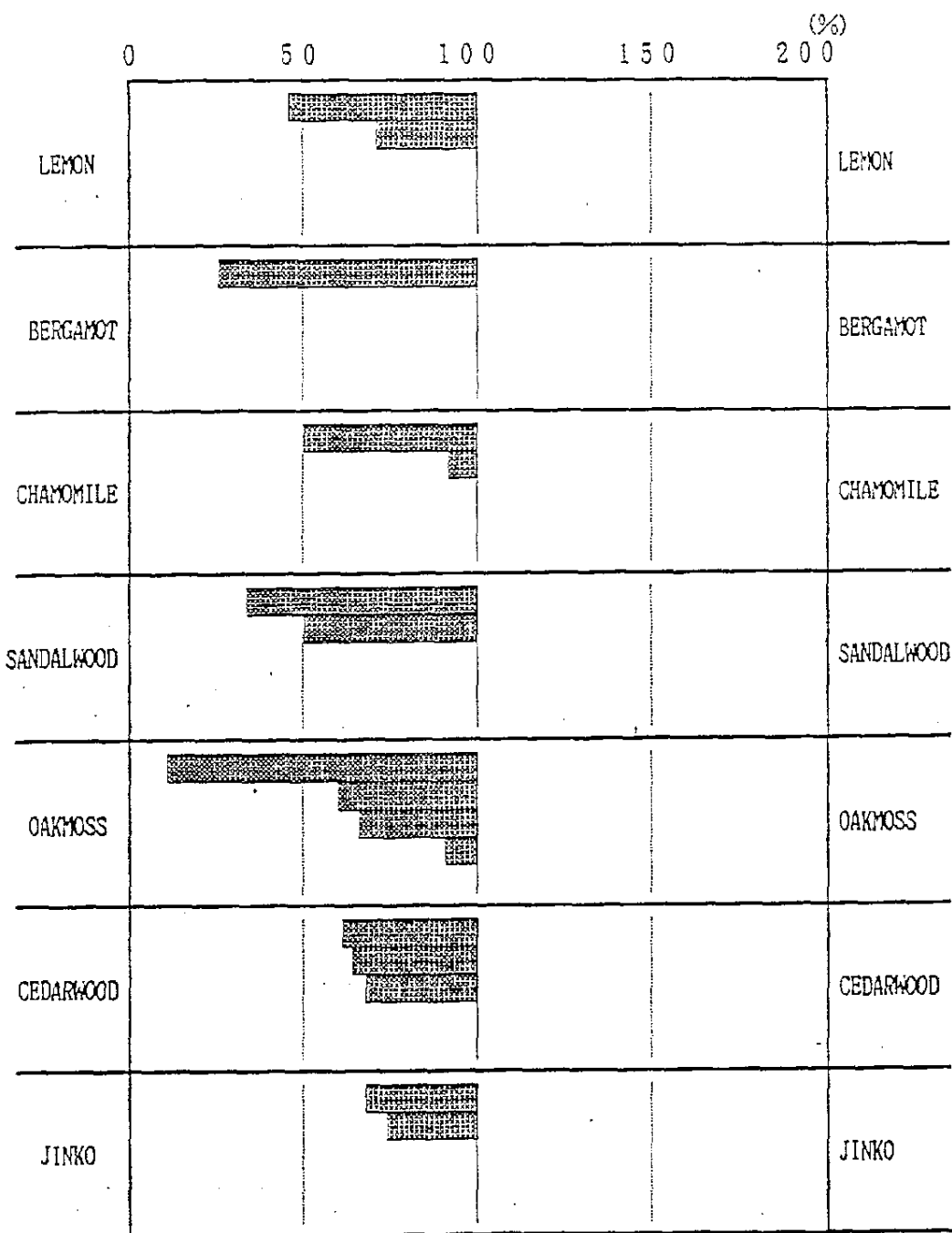
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The change of magnitude at the early component of CNV under the presentation of various essential oils.

Case-1; The amplitude is higher than blank
(Invigorative effect)

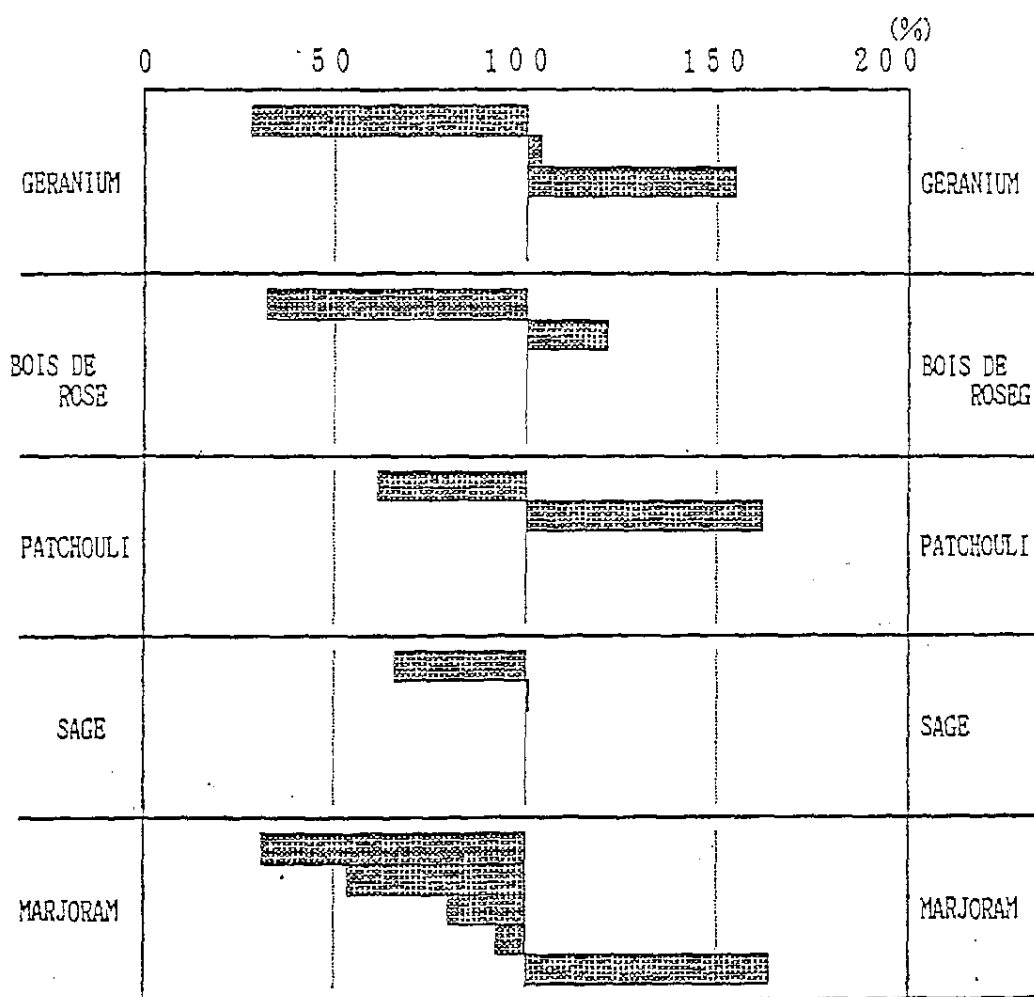
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The change of magnitude at the early component of CNV under the presentation of various essential oils.

Case-2 ; The amplitude is lower than blank
(Sedative effect)

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The change of magnitude at the early component of CNV under the presentation of various essential oils.

Case-3 ; These essential oils show indefinite effect.

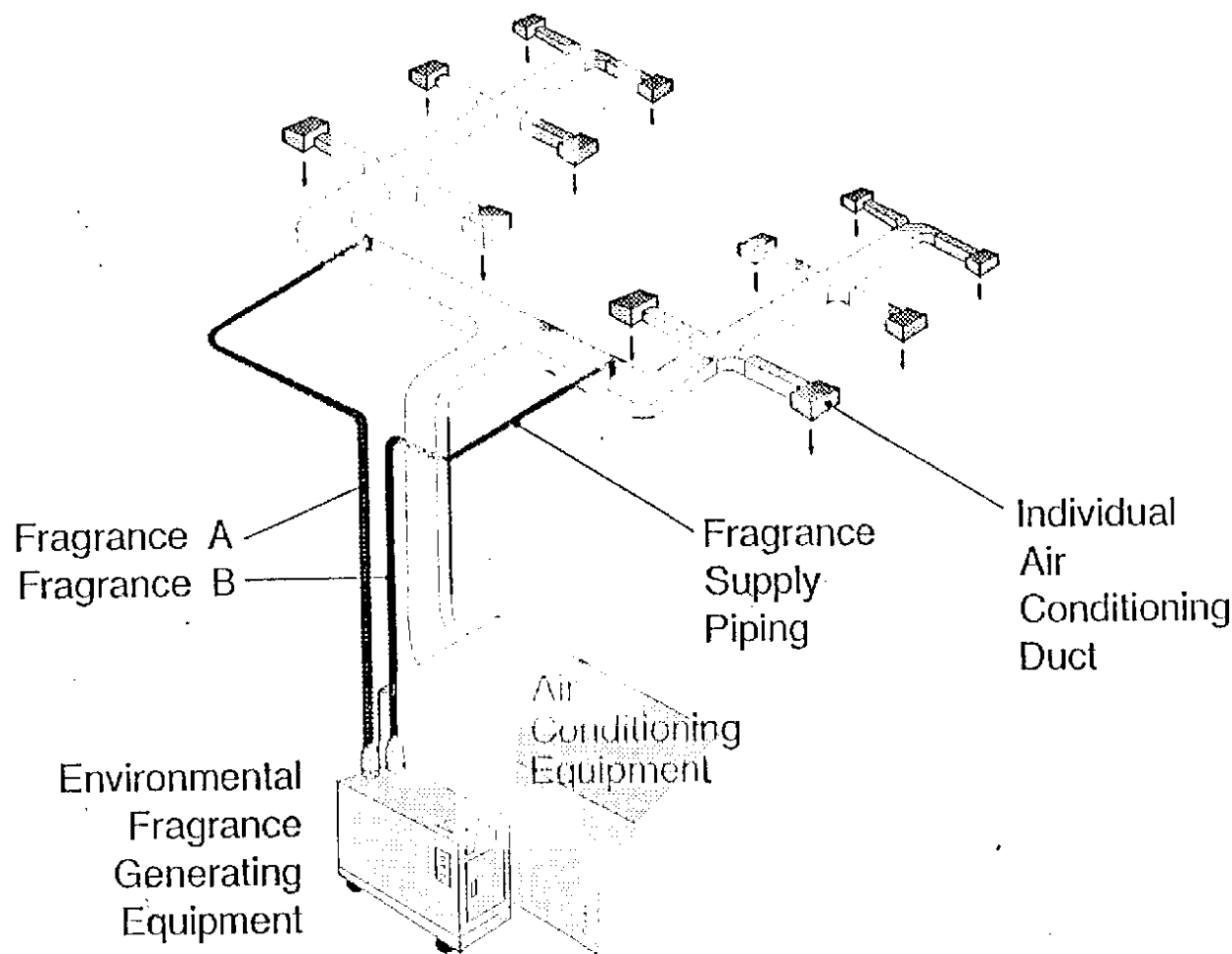
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Research – Marketing Implications

- Scientific Basis – Valid Product Difference Claims
- Differences Perceived by Consumers

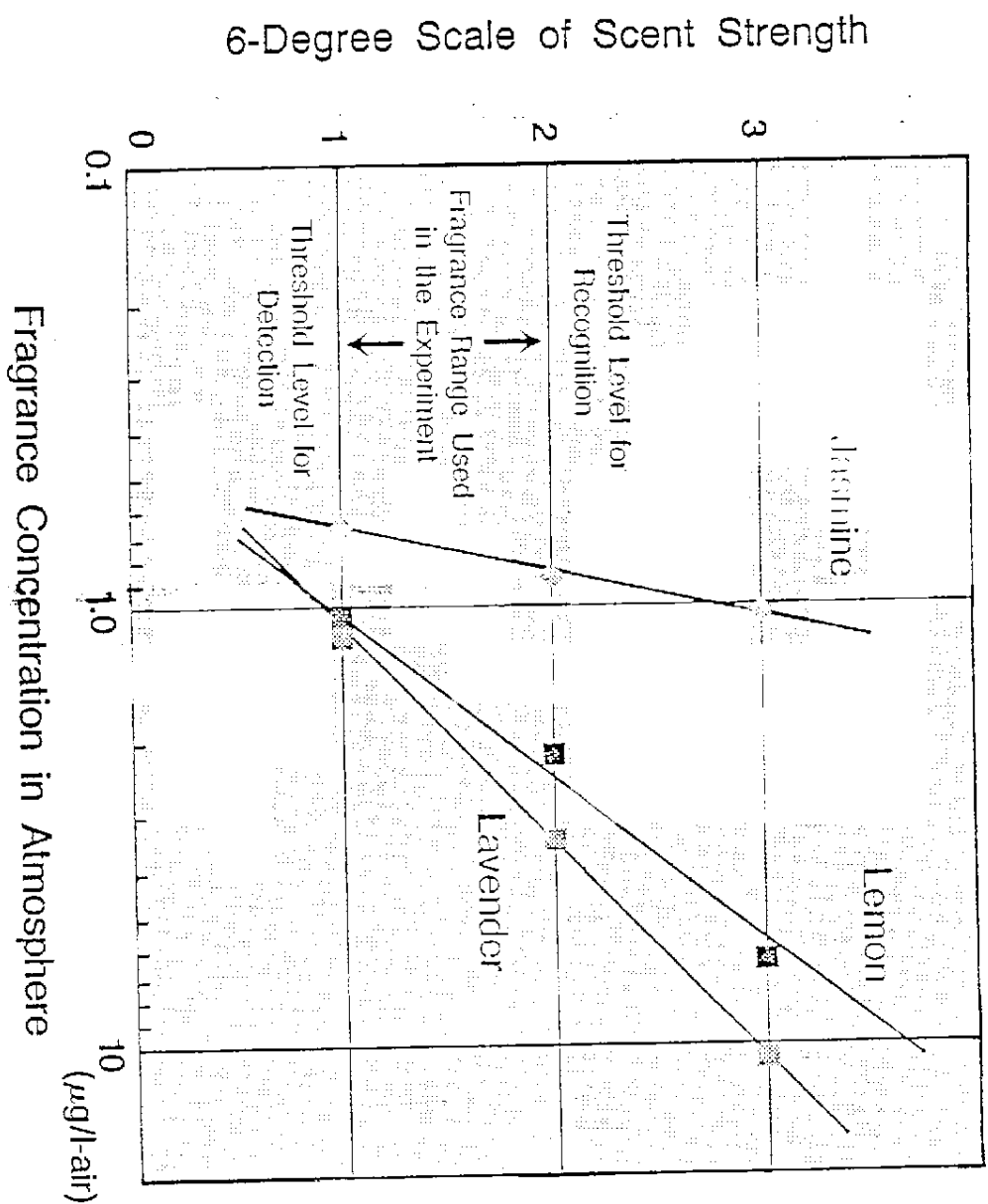
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Aromatherapeutic Environmental Fragrancing System Supplying Two Fragrances

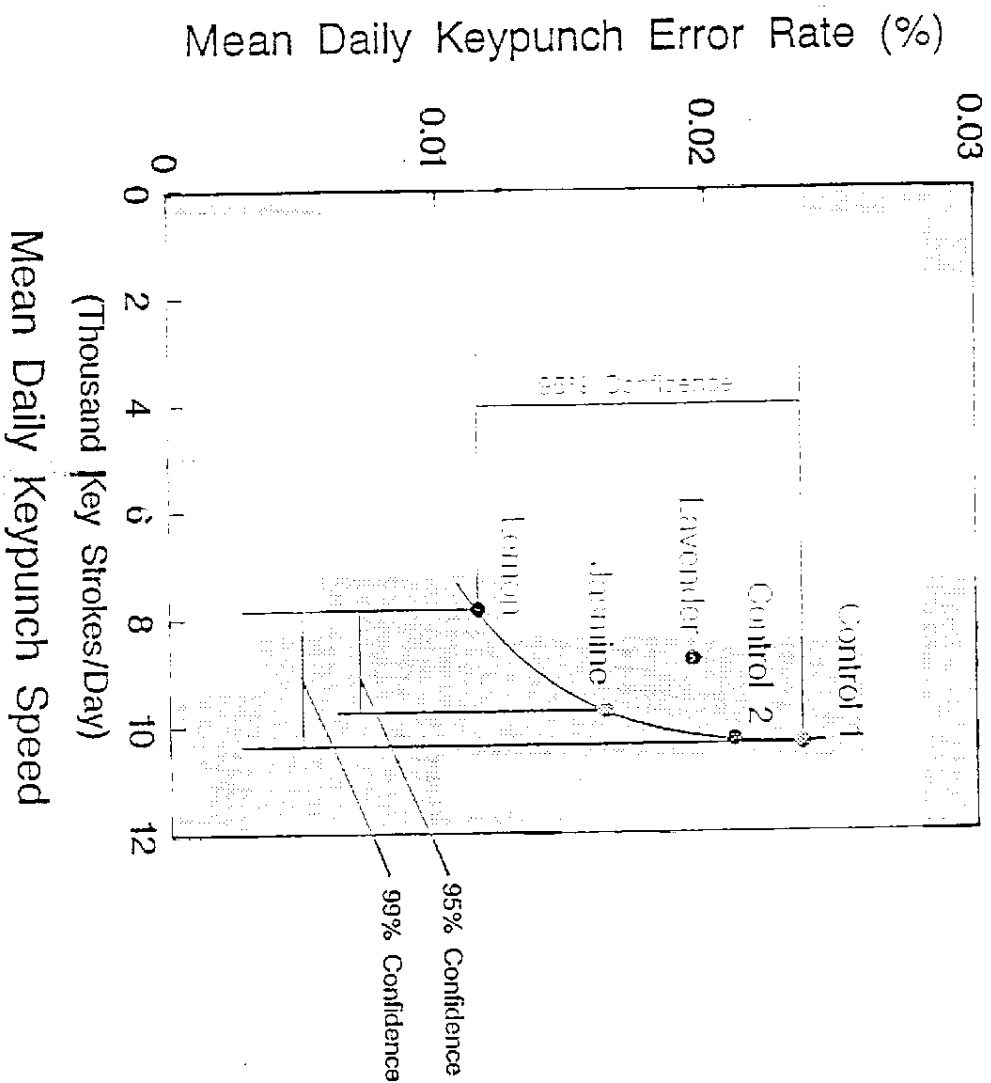


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Fragrance Concentration in Atmosphere and Threshold Level



Keypunch Speed and Error Rate in VDT Work



Number of Keypunchers: 13 Experimental Term: About 1 Month

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